Mr. Neville's New Invented Leg Splint.

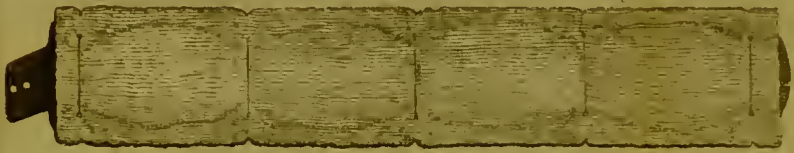


FIG. 2.

FIG. 2. 2. Represents the side Splints properly Padded, manufactured of light and flexible Metal: intended to yield an efficient lateral support to the Limb, and capable of taking any form that the varying outline of the Limb may require.

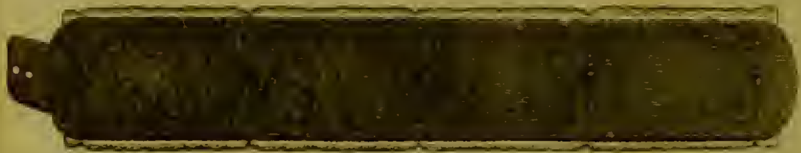


FIG. 2.

FIG. 1.

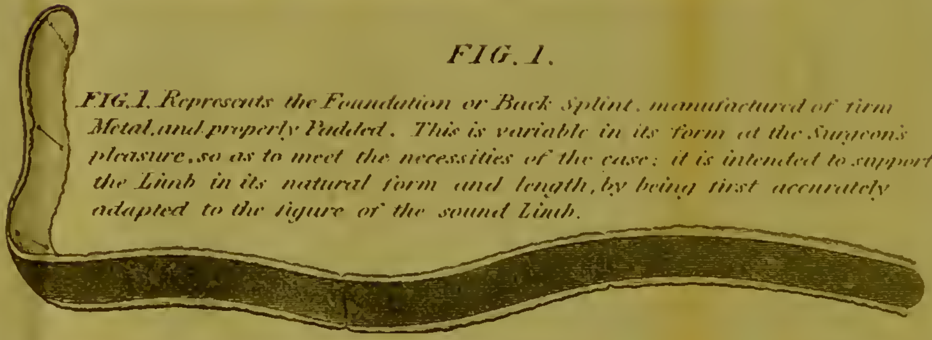


FIG. 1. Represents the Foundation or Back Splint, manufactured of firm Metal, and properly Padded. This is variable in its form at the Surgeon's pleasure, so as to meet the necessities of the case: it is intended to support the Limb in its natural form and length, by being first accurately adapted to the figure of the sound Limb.

FIG. 3.

FIG. 3 Represents a Fractured Limb laid on the Foundation Splint, and secured at the Foot and Knee by proper bandages, leaving the injured part of the Limb exposed for dressing.

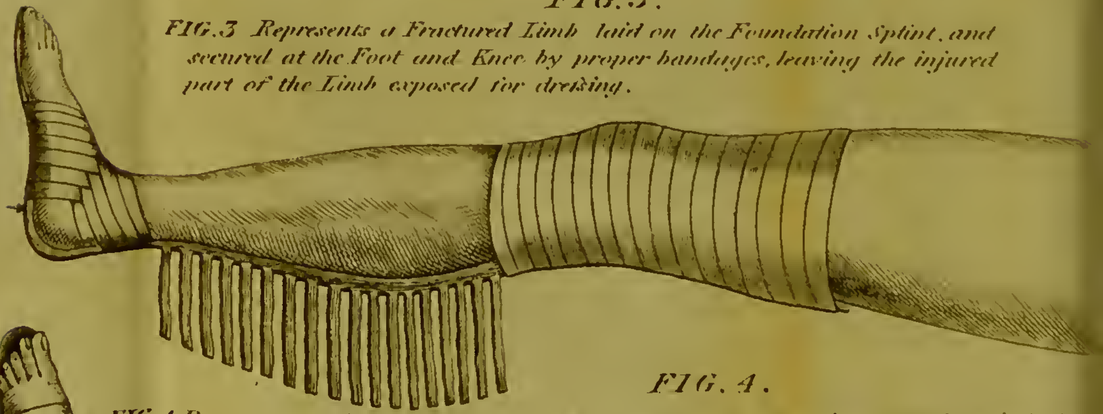
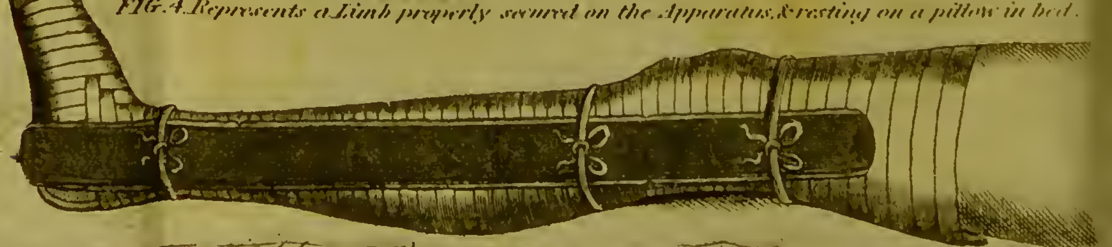


FIG. 4.

FIG. 4. Represents a Limb properly secured on the Apparatus, & resting on a pillow in bed.



Manufactured and Sold, only
—BY—
JAMES THOMPSON,
Surgeon's Instrument Maker,
38, Great Windmill Street, Haymarket, London.

Mr. NEVILLE'S IMPROVED THIGH SPLINT.

FIG. 1.

Represents a Thigh Splint manufactured of firm Metal, and properly Padded, having a short back Splint which shifts to suit either limb: it is also made with a slide to make it of different sizes.

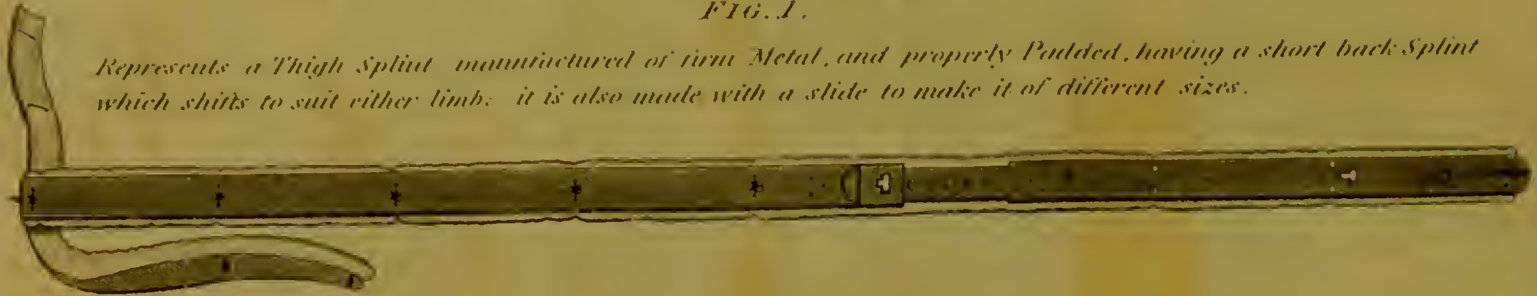
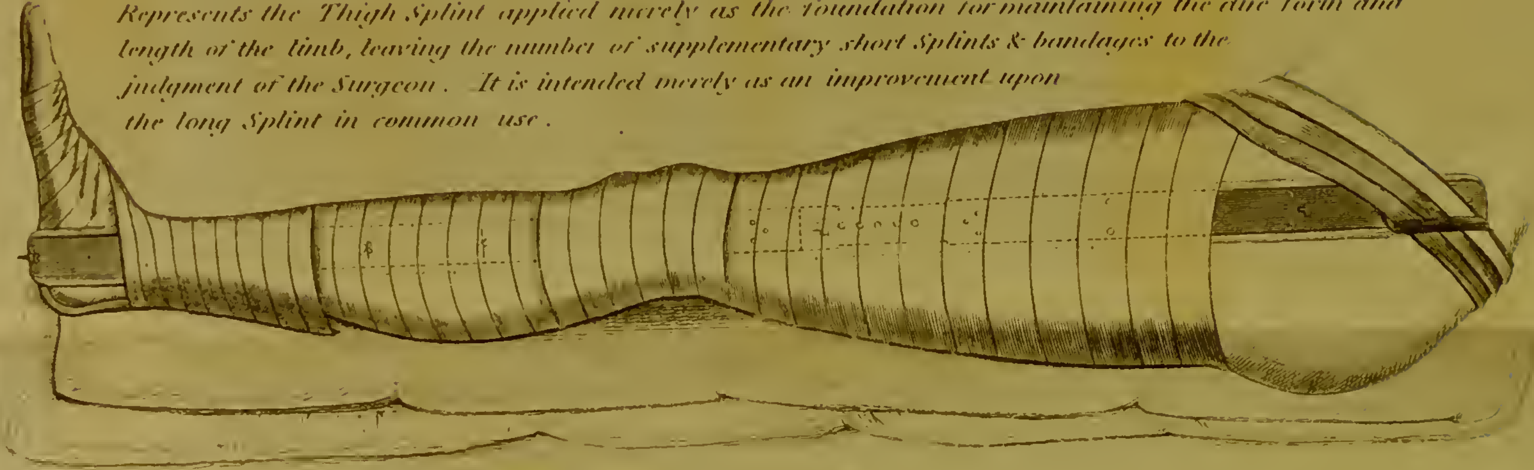


FIG. 2.

Represents the Thigh Splint applied merely as the foundation for maintaining the due form and length of the limb, leaving the number of supplementary short Splints & bandages to the judgment of the Surgeon. It is intended merely as an improvement upon the long Splint in common use.



I.W.R.

Manufactured and Sold only by
JAs. THOMPSON, Surgeons' Instrument Maker,
38, Gt. Windmill Street, Haymarket.

REMARKS, &c.

Extracted from the Medical Gazette of Feb. 26th, 1831, *and Lancet of March 5th,* 1831.

It often happens in fractures of the leg, where both bones are broken nearly in the same relative part of their shaft, that, whether the limb be laid on its side, in a state of semi-flexion, or extended in the straight position, it is found difficult to keep the broken ends of the bones respectively in such accurate contact, as finally to preserve the proper figure of the limb. The weight of the foot, and the hollow form of the leg at its back and lower part, together with the projection of the heel, constitute some of the difficulties both in simple as well as compound fractures, and a reference to the anatomy of the bones as well as of the soft parts will show us that such difficulties are to be expected. In compound fractures too, a necessity may arise for frequent changes of dressings and bandages, and this is seldom accomplished without some disturbance which it would be very desirable to avoid. The absolute necessity of occasionally moving the patient in bed, is another source of disturbance to the fracture, and the pressure of splints against some prominent part of the limb in order to give proper stability to the whole, is a matter very annoying, and very often complained of.

In the endeavour to obviate some of these difficulties, and to fulfil the primary purposes of the surgeon simply and effectually, I have constructed a new sort of splint for the leg, the utility of which I have proved in some very bad fractures, to the satisfaction of several professional friends, besides having received the complimentary testimony of other surgeons who have employed the same plan in their own practice. I have shown the splints to many surgeons of great experience in military, naval, and private practice, and in every instance they have expressed the most decided approbation of them, both in regard to the accuracy of their mechanical power, and their ability to meet the pathological requirements of fracture. I am therefore induced to publish this account of them, in the hope that they may become useful auxiliaries in many instances, and I shall be highly gratified to find that a more extensive trial may confirm the favourable opinion which so many have already expressed of them. The plan of the instrument is very simple, and the materials of which they are composed exceedingly durable. Mr. Thompson, of Windmill Street, to whom I have given the plans and any advantages that may arise therefrom, has taken great pains to manufacture the splints neatly, and he has spared neither trouble nor expence in procuring a set of engravings which accompany this paper so as to exhibit and explain the matter pretty accurately.

I need only say, therefore, that the splints are made of iron, and the padding of flannel eight times folded, and enveloped in a cover of linen or of chamois leather. The substance of the under splint, is such as to bear the weight of the limb easily, and yet to bend so as to meet any shape that may be required; the substance of the side splints is almost the lightest that is to be obtained, and such as will enclose the limb laterally with great exactness, and maintain its shape without any painful pressure; the padding is sewed on the splints, through holes bored in pairs at proper distances.

It is thus assumed that a flexible splint, with soft and regular padding, will perform its office more accurately, and with less pain to the patient, than an inflexible splint and graduated cushion.

Several different sizes will of course be required, to meet the length and width of different limbs from childhood to the adult age, as the object is—to provide a firm and easy resting-place for the limb, additional to the pillow, by carrying a splint at the back of the limb from the point of the toes to half way up the thigh—to retain the limb thereupon in its natural form by fastening the foot and ancle to one end by a figure-of-8 bandage—and to extinguish for a time the action of the knee-joint, by binding it with a broad linen roller, moderately tight only, upon the other end of the splint, carrying the roller a little below the knee and as far above on the thigh as the splint extends.

The side splints will assist in maintaining the accurate position of the limb, as from their flexible nature they will accommodate themselves to the existing state of the limb, and having a bearing on the foot part of the under splint, and extending thence above the knee, they will yield an efficient and accurate support in their whole line.

A little oiled silk being laid on the back splint, under the fractured part of the limb, and the eighteen-tailed bandage upon this, the latter may be changed at pleasure by means of a spatula : or what in many cases is easier, the eighteen-tailed bandage may be altogether applied under the back splint, and yet encircle the limb with sufficient power.

This arrangement of the fracture will provide for—

1st. The easy and natural position and length of limb.

2nd. The necessary change of dressings.

3rd. Passive motion, without disturbing the fracture.

But as there is a great variety in the nature of fracture, and as all mechanical means are limited in their power, so in those which I have now the honour to submit, there will arise occasional difficulties in adapting neatly the means to the end we have in view.

In putting up a fractured leg, as it is termed, some surgeons make use of an upper splint to lie along the anterior part of the limb. In order to obtain much advantage from this, it should probably extend through the whole course of the tibia; but as the foot rises from the end of this bone, at an obtuse angle, there is often much inconvenience felt by the end of the solid splint pressing against the instep. To obviate this I have suggested a flexible splint, made of very narrow strips of thin metal sewed on a pad, in imitation of the wooden splint. This may be turned up at the end, so as to accommodate the instep, and, as Mr. Thompson manufactures it, the splint has a very neat appearance.

OF FRACTURED THIGH-BONE.—From the diversity of means proposed for the management of fractured thigh-bone, it may be inferred that this accident is a matter of serious consideration for the surgeon, and of this fact every man's experience will sooner or later convince him. Every eligible proposition for managing such cases is, therefore, a matter of interest to him who desires to perform his work neatly as well as securely. Those who have been accustomed to use the long splint, as it is called, (a plan, I believe, emanating from French surgery), and who have witnessed the successful results of its operation, will not readily be persuaded to abandon it, in the majority of cases, for any other means. Admitting, then, the preference which many surgeons entertain for that instrument, I have ventured to think that the alteration I have made therein will be received as an improvement; such at least is the assurance which I have received from persons practically competent to offer an opinion.

The instrument described in Mr. Thompson's plate is made of iron and padded throughout, on the simple plan already described; it is strong enough to maintain the length of the limb when duly applied, and requires, like the old splint, the agency of additional short splints to compress the powerful muscles of the thigh. In the construction of the old splint, a separate one was required for each limb; in this of mine the shaft is moveable on the foot-piece, and the instrument is thus convertible into right or left at pleasure. In the old splint a great distress was generally experienced from the pressure of the lateral foot-board, or from the stricture of bandages required to preserve the foot motionless; in mine, by providing an easy and accurate resting-place for the heel and lower part of the leg, and at the same time the sole of the foot having a support accommodated to its shape, the whole of these parts may be bound easily, yet securely, so as to constitute the one grand *point d'appui.* The shaft being then added the ancle will be received against a soft cushion, and will escape all violent pressure, whatever *be the form or size of the malleolus.* In making the upper point of resistance against the ischium, one end of the bandage, pierced by the hook, may be thus neatly fastened thereon, and the few other turns will be easily received into the sinus which the hook makes with the shaft, and kept secure from slipping. The two principal points for giving the limb its due length being thus secured, it will naturally occur to the operator, that the next part requiring attention will be the centre of the shaft, viz., that in contact with the knee. To those who may prefer wood to iron for the shaft of the thigh splint, I beg leave to say, that Mr. Thompson has manufactured both, having adapted the iron foot-piece to a wooden shaft of the same size as in the old splint.

In conclusion, I may say that I have made a variety of experiments with different sorts of metal, and also with the same metal, in various states of ductility, for the purposes above mentioned, and I have preferred such as are here described. In what I have done my aim has been merely to be useful, and if in the endeavour to multiply useful means, or to simplify such as would admit of improvement, I have effected anything worthy of imitation in principle, or of adoption in practice, I shall be sufficiently rewarded for the pains I have taken.

Esher, Surrey, Feb. 1st, 1831.

POSTSCRIPT.

Since the foregoing paper was published, I have had additional opportunities of employing these splints in my own practice, and of demonstrating their power to many professional friends, who were desirous to see them in operation.

From this I have derived the twofold satisfaction of knowing that, while I have contributed to the ease and safety of the patients, I have also fulfilled the utmost expectation of the surgeon.

Every surgeon of experience knows that the inflammation and tumefaction frequently attendant on fractures, make it difficult for him to know that the broken ends of the bone are replaced and maintained in accurate contact—he will therefore admit that mechanical contrivances, however nicely adapted, do not absolve him from the duty of occasional examinations of the limb, and of a careful superintendence during the time prescribed for the patient's confinement.

To those friends who have so frankly and so warmly commended my plans, I beg to offer my best thanks, and to assure them, that the conviction of having been thus useful in my vocation, is the fullest compensation I desire.

W. H. Neville,

Esher, Surrey, July 6, 1831.

J. THOMPSON has the pleasure of informing the Faculty he has had the honor of submitting Mr. Neville's Splints to some of the most eminent Surgeons in London, and they have been pleased to express their approval in the most gratifying terms; and those gentlemen who were Hospital Surgeons have directed them to be employed in their respective Hospitals.

Copy of a Letter received from the Hon. Commissioners for Victualling His Majesty's Navy.

VICTUALLING OFFICE, 20th MAY, 1831.

SIR,

I am commanded by the Commissioners for Victualling His Majesty's Navy to acquaint you, that the Splint for Fractures of the Leg and Thigh, constructed by Mr. Neville of Esher, which was transmitted with your letter of the 19th instant, has been forwarded to Haslar Hospital for trial, at a proper opportunity.

I am, SIR,

Your humble Servant,

M. WALLER CLIFTON.

MR. JAMES THOMPSON,
Surgical Instrument Maker,
38, Great Windmill Street.

Directions for using Mr. Neville's Splints for the Leg.

1st. Set the form of the Back Splint to the sound Limb.

2d. Reduce your Fracture and apply the leg to this Splint by confining it with a common Roller, a little above and below the knee, also at the foot and ankle.

3rd. Apply either a Circular Roller or 18 tail bandage in the usual way.

4th. Attach your Side Splints and tye them in different places with Webbing or common Roller.

⁂ If the Fracture be compound, a Frontal Splint is sent capable of taking any form.

The great advantage of these Splints are, that you may, without disturbing your fracture, renew your bandages every day.

The Thigh Splints are considered a great improvement on Dessault's, inasmuch that you can do away with more than half the number of Splints, and they apply to either right or left Thigh. The application of this Splint is precisely on the same plan as Dessault's.

Diggens and Jones, Printers, 15, Leicester Street, Leicester Square.